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A SOCIETY FOR THE ADVANCEMENT
OF THE
SCIENCE OF ELECTROPLATING

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PHILADELPHIA BANQUET

Saturday 22nd, November, 1924, at Mosebach's Hall

Arrangements are made for greatest and best Meeting and Banquet.

Exhibits will be shown, papers read by leading Authorities on

Plating and Finishing

Good entertainment for the ladies—plenty of prizes and souvenirs.

Philadelphia Branch invites you to be there.

MONTHLY REVIEW

Published by the

American Electroplaters' Society

ONEIDA, NEW YORK

Editor's Office, 166 Willow Place, Sherrill, New York

VOL. XI OCTOBER, 1924 No. 10

TO ALL MEMBERS OF THE A. E. S.

WALTER FRAINE

October is here. Summer is over with its depressing heat. The cooler and energizing days of autumn are with us, bringing with them the realization that holidays and vacation time has slipped away, and that the time has arrived when you, as members of the A. E. S., must plan the activities of your branch societies for the winter months.

What can you do to make your meetings of greater value and benefit to yourself and the society? What does the society need from you and expect from you as loyal members?

First of all you can help your branch by a regular attendance at its meetings. A full attendance gives greater inspiration and encouragement to your branch officers to plan for and to arrange more interesting affairs. You can help by attending the social and open meetings and share in the spirit of good-fellowship which they foster. You can give encouragement to the member who has not as yet acquired the real spirit of the society and you can do your part to reform the carping critic and knocker or, if he has an honest-to-goodness reason for his attitude, help to remedy the conditions causing it.

The society hopes to increase its membership and to work in usefulness. You can help by publishing the good work accomplished through the society for the "advancement of the science of electroplating" among your fellows who are not members at present and thereby secure new members to swell our roll. As our society is organized on the basic principle of mutual helpfulness and as we increase in members and quality of membership, more good can be accomplished and greater advance made.

This winter the society will witness a revival of activity. To secure the greatest good every member should do his part. If you have not been as active in the past as you should, get busy at once. If you are now an active and interested member, double up on your efforts. You can always do more.

And perhaps, after you have lived your little day and played your part in building a greater and better A. E. S., your epitaph, in so far as the society realizes your good work, may be that of Euripedes. "This monument doth not make thee famous, O, Euripedes, but thou makest this monument famous."

PRESIDENT'S MESSAGE

Greetings to the Membership:

In my message this month I want to bring to your attention "the Spirit of Goodfellowship and ask that this be cultivated among the entire membership in all of our branches." In writing on this subject I am reminded of that old adage: "All work and no play makes Jack a dull boy." It also occurs to me while transgressing upon your time that this spirit has been neglected to a considerable degree in the serious trend of our minds while seeking the Power of Education in our Chosen Profession of Electroplating.

A good many of us go to the meetings from month to month, always seeking knowledge of our art, and neglect the social side of our fellows. If we have been going along in this manner we should take a mental inventory of ourselves and decide that it is about time to give some thought to this phase of our associations and change to a certain extent and add to our interest that of our fellows, and remember that a hand shake here and there and a Hello, Jack or Jim or John, how are you and how's the family, and things of that sort, are a wonderful stimulant toward making the spirit of good fellowship a reality, and makes your fellow members feel that you are interested in them further than just to extract some important point or problem in plating from them.

I believe that the Branch Officers and Past Officers should appoint themselves as a permanent social reception

committee for every meeting, and I also ask at this time that the debates or discussions be free from all personalities and any feeling other than the fact that we are all trying to solve the problems that confront us daily in our work and respect every member's questions and answers, no matter how they may sound, because if we were all wise men, maybe we would not know as much about plating as we do, and as my good friend, Griffith Alexander, has said (dont' take yourself too serious):

Life

What's Life? A story or a song;
A race on any track;
A gay adventure, short or long,
A puzzling nut to crack;
A pit where fortune flouts or stings;
A playground full of fun;
With many any of these things;
With others all in one.

What's Life? to love these things we see;
The hills that touch the skys.
The smiling sea; the laughing Lea;
The light in woman's eyes;
To smile, though games be lost or won;
To earn our daily bread—
And when at last the day is done
To tumble into bed.

Very truly yours,
F. J. HANLON,
Supreme President.

Lost by Death

William F. Asimus on September 12th. Died in Rome, N. Y.

OHMS LAW

F. Horath, St. Louis Branch, A. E. S.

Calculating Resistance by the Fall of Potential Method

Every plater has at times found that his solution was not conducting in an efficient way and his first thought would usually lead him to believe that his solution was in a bad conductive state. Usually he would add more conducting salts to try to bring his solution back to a good conductive state again, where perhaps the conducting salts was not needed in the first place.

Poor conductivity can be traced to a lot of resistance in the electrical circuit, therefore it is essential that the plater should understand more about the methods used in testing and the operation of the instruments and devices used, such as a Volt Meter, Ammeter and Rheostat.

When the plater once has his solution in a good conductive state he should try and note what his Resistance in Ohms is so that he will have a base to work upon in the future regarding the amount of conducting salts to be added to bring his solution back to a good conductive state again.

It is a known fact that the temperature of your solution has a great effect on the resistance and conductivity of your soluton; nothing varies so much as the temperature. Therefore it would be well to take a thermometer reading whenever high resistance is suspected.

The resistance of your solution can be calculated by Ohms Law, which shows us that the current strength falls off with the increase of a resistance in the electrical circuit. There are different methods used to measure Ohms resistance and no doubt you all heard of the Wheat-Stone Bridge method which is considered one of the best methods used. But all platers have not the advantage of being in possession of a Wheat-Stone Bridge, therefore I will give you a different method, one that I think you will find convenient for practical work in the plating room.

All that is needed is a Volt Meter, Ammeter and Rheostat, which you will find in every up-to-date plating room. This method that I am going to explain to you is known as

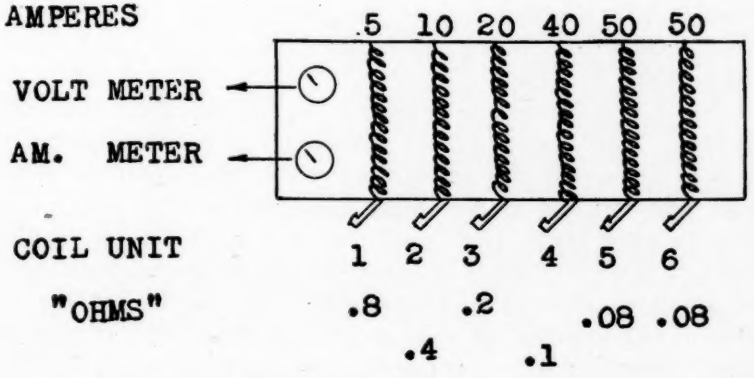
the Fall of Potential method, which is a simple method of measuring resistance.

The tests are made by reading the Volt Meter and Ammeter and the unknown resistance is calculated by Ohms Law. In the following rules and problems, which you will note on the charts, you can see how the resistance is calculated and when using these different rules we will take for granted that the solution is also figured in to the electrical circuit, which being the case, and that all electrical connections leading to the buss bars and generator are of the right current carrying capacity.

In every electrical circuit there are three factors which we have to contend with, which are:

The pressure or potential difference expressed in volts.. E
The current which is expressed in Amperes I
The resistance which is expressed in Ohms ..... R

The relation of these factors is such that when any two factors are known the other one can be calculated. When using these rules I will use the letters in place of writing the names of the different factors: E is for volts; I is for current in amperes, and R is for resistance, which you will note in Fig. 1.



Rule 1—

To find the value of your current, divide the voltage by the resistance. In a more simple form we will use the letters and example thus: If you have 2½ Volts pressure and your resistance is ½ Ohms then your current should be 1¼ Amperes:

$$I = \frac{E\ 2\frac{1}{2}}{R\frac{1}{2}} = 1\frac{1}{4}\ \text{Amperes}$$

Rule 2—

The volts that are needed in a circuit are found by multiplying the amperage by the resistance; for example: If you have 5 amperes flowing and your resistance is ½ Ohms, you will need 2½ Volts.

$$E = \frac{5 \times \frac{1}{2}}{IxR} = 2\frac{1}{2}\ \text{Volts}$$

Rule 3—

By dividing your voltage by the amperage your resistance in Ohms is found. For example: If you have 4 volts with a current strength of 2 amperes, your resistance will be 2 ohms.

$$R = \frac{E4}{12} = 2\ \text{Ohms}$$

Your Amperage varies directly with the volts and inversely with the resistance. Inversely means opposite to; this means if you leave too much resistance in your circuit less current will flow.

Too much resistance in your circuit comes from different sources. For instance; not sufficient conducting salts in your solution; by not regulating your tank rheostat properly; the voltage is not high enough for the amount of work in your tank; the anodes have a poor working efficiency; or poor electrical connections; or anode surface being too small in relation to cathode surface; or by taking out some of the anodes; or your solution is too cold. If you decrease some, or all of these resistances then more current will flow. This rule also applies to the field rheostat of your generator.

You will note that when your Volt Meter indicates

higher voltage your amper meter will also indicate higher amperes. This you will find to be true unless the machine is overloaded. Sometimes you will notice at the tank that the volt meter goes down as ameter goes up, caused by drop in line. This is more pronounced when the circuit or part of the circuit has about reached the limit of its current carrying capacity. This you will sometimes find due to branch leads and connections to your tank being too small.

Rule 5—

The resistance must be varied directly with the voltage and inversely with the amperage. This means that when you increase your voltage and you desire the same amount of current in the circuit you must add more resistance into the circuit, or if you cut down your voltage and you wish your amperage to remain constant, you must decrease some of your resistance. This rule applies to your tank rheostat which is connected in series with the buss bars and your tank, so whenever you increase or decrease your resistance through your rheostat of your tank, you can calculate your Ohms resistance by reading your volt and ammeter.

You would think that overloading your tank increases resistance in your circuit. This might be true in some cases, but to a very slight extent. When you hang in more work the ammeter goes up, but not in the same proportion. After you have exceeded the anode surface your solution is a conductor about 6 inches long and a cross sectional area equal to anode and cathode surface.

Now, with any conductor you decrease resistance and increase conductivity by increasing the sectional area. Thus, we will take for example a pure copper bar. One square inch cross-sectional area will safely carry 1,000 amperes and two square inch cross-sectional area will carry 2,000 amperes, no matter what shape. Now, when you hang in more work you are increasing the sectional area of your solution and at the same time when you take out anodes you decrease your sectional area.

Rule 6—

The voltage varies directly with the current and the resistance, which means that if you raise your voltage your

current will rise and if you cut down your voltage your current will drop also. Your voltage must be raised when more resistance is added if the same current is wanted.

The rules and problems that you will note in Figs, 2, 3 and 4 apply to when your voltage is higher than your amperes, but if the amperage flowing is larger or greater than your voltage then the Ohms resistance will be less than one Ohm or will be a fraction of an Ohm.

We will assume that 15 amperes are flowing under a pressure of 4 volts; the resistance in Ohms would be equal to 4 divided by 15.

$$R = \frac{E4}{I\ 15} = .26 \text{ or } 4\text{-}15 \text{ Ohms}$$

Likewise if 50 amperes are flowing under a pressure of 6 volts the resistance would be equal to 6 divided by 50.

$$R = \frac{E6}{I\ 50} = .12 \text{ or } 3\text{-}25 \text{ Ohms}$$

Or, if 10 amperes are flowing under 2 volts pressure the resistance would be equal to 2 divided by 10.

$$R = \frac{E2}{I\ 10} = .20 \text{ or } 2\text{-}10 \text{ Ohms}$$

Calculating the Resistance of Your Rheostat—

For determining the resistance of a rheostat we will take a parallel rheostat for 4 volts and 175 amperes capacity with 5 amperes divisions for which the total Ohms resistance is:

$$R = \frac{E4}{I\ 175} = .02+ \text{or } 4\text{-}175$$

We will say that you wish to operate a tank with 3 volts—15 amperes—from a 6-volt buss bar and you have a rheostat of 4 volts—175 amperes capacity—and you want to know how much resistance you must have through your rheostat in order to obtain the necessary 3 volts. The potential drop that would be required from the 6-volt buss bar to your tank would be 6 volts less 3 volts, equals 3 volts, which is the (E) drop through the rheostat.

By Ohms Law the resistance of your circuit or part of

your circuit is equal to the volts divided by the current flowing, so in this case 3 volts divided by 15 amperes will give you 2-10 Ohms. Therefore, 2-10 Ohms resistance must be inserted in series with your tank through your rheostat which will give you the 3 volts and 15 amperes.

To caluculate the separate coil units of your rheostat you will note that coil unit No. 1 gives 5 amperes with .8 ohms resistance. Coil No. 2 gives 10 amperes and .4 ohms resistance, so in order to get your right resistance to obtain your 3 volts fro ma 6-volt buss bar, giving you 3 volts potential difference or volt drop through your rheostat, you would have to use a resistance of 2-10 ohms, which would be coil unit No. 3. The highest resistance coil is No. 1 and the lowest is No. 5.

In a series rheostat which you will note in Fig 9, the resistance coils are all connected in series, the current passes through the different coils one after the other; the current is the same in all parts of the circuit. In a multiple or parallel circuit, as in Fig. 8, the current divides, part passing through each of the different coils. So, you can readily see that in a series rheostat where the current has to pass through all the coils one after another, the combined resistance will be equal to the separate resistance added together. Calculating the combined resistance of a series rheostat is very simple and is easily understood, although you must remember that the resistance at any point will be equal to the sum of the separate resistance, added together up to that point.

We will take for example, as shown in Fig. 1. You will note that there are 5 coils connected in series which have a resistance of .01, .03, .05, .07, and .09 ohms, respectively. Adding up these separate resistances you will have a total of 25-one hundredths ohm resistance. Assuming that the generator voltage is 6 volts, the current that you have flowing through your rheostat will be 6 volts divided by 25-hundredths ohms, equals 24 amperes. If you set your rheostate at point 2 the resistance will add up as .01 and .03, equals .04 ohms, the current then will be 6 volts divided by .04 ohms, equals 150 amperes. By similar calculations for

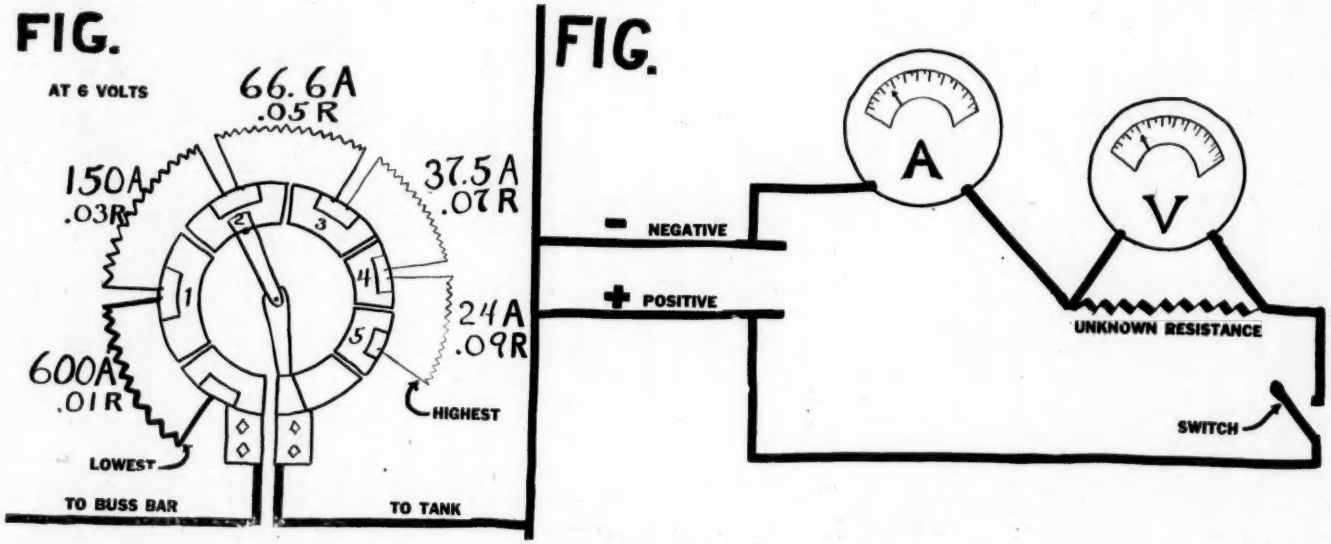


FIG.
AT 6 VOLTS
66.6A
.05R
150A
.03R
37.5A
.07R
24A
.09R
600A
.01R
1
2
3
4
5
HIGHEST
LOWEST
TO BUSS BAR
TO TANK
FIG.
NEGATIVE
POSITIVE
A
V
UNKNOWN RESISTANCE
SWITCH

Fig. 2

the 5 steps the currents will be respectively 600 and 150 and 66.6 and 37.5 and 24 amperes.

In a series rheostat the more coils that are put into the circuit the more the current will be decreased; while in a parallel rheostat the more coils that are put into the circuit the more the current will be increased.

Now the question might arise in your mind how are you to know what the resistance in ohms is for each coil unit on a series rheostat. The manufacturers of rheostats, having neglected to state or show any kind of marks or figures showing just what the resistance in ohms is for each coil unit, it is up to you to find the separate resistance. This can be accomplished with the Volt Meter and Ammeter method, as shown in Fig. 2.

This method is directly dependent on ohms law and as stated before, that the resistance is equal to the voltage divided by the current. To measure the resistance of one of the separate coils of a rheostat, the coil or unknown resistance, as shown in Fig. 2, is placed in series with the buss bars, an ammeter and a switch. A volt-meter is connected to the terminals of the unknown resistance. To get accurate results the resistance of the volt meter must be larger as compared with the resistance to be measured, otherwise considerable current will flow through the volt meter and be measured by the ammeter.

When measuring resistance for a small fraction of an ohm, the volt meter should have a scale reading tenths of a volt in order to get accurate results. To show you an example we have an ammeter that will measure 750 amperes and a volt meter that will measure 10 volts. We desire to measure the resistance coil of unit No. 1 on your series rheostat. You connect the resistance as shown in Fig. 10, having the switch open; when closing the switch a quick reading should be taken of the volt and ammeter, otherwise if switch is left closed any length of time, the resistance to be measured will begin to get hot which would add more to the resistance being measured. We will say that the ammeter reads 600 amperes and the volt meter reads 6 volts; the resistanse is equal to the 6 volts divided by 600 amperes which equals to .01 (one hundredths) of an ohm.

To illustrate to you the method for using the volt meter

and ammeter to calculate for the amount of conducting salts to be added to your solution, we will take for example that you are plating with a full tank load a class of work that requires 150 amperes with 6 volts. Now should you notice that with the same amount of work, and that all other conditions are right; such as, the right temperature of solution, etc., your volt meter drops to 5 volts and ammeter shows 125 amperes, you will have a loss of 1 volt and 25 amperes which gives you a resistance of .04 ohms, due to lack of conducting salts in your solution.

To overcome this resistance, you must raise your voltage or add more conducting salts to your solution until your ammeter shows 150 amperes again. By keeping a record of the amount of conducting salts you have used it will give you a basis to work on in the future.

In getting up this paper, it was intended that it would be a simple method for the plater to find his ohms resistance in an approximate way by reading his volt meter and ammeter, but if the plater wishes to go into more details in measuring his solution for the resistance of square foot of plating surface, then I would refer him to the use of the Wheat-Stone Bridge method as it was explained to you at one of the past conventions.

DETROIT BRANCH AMERICAN ELECTROPLATERS' SOCIETY

SPECIAL REPORT NO. 17—RESEARCH COMMITTEE

THE NICKEL PLATING OF ZINC BASE DIE CASTINGS

B. E. Miller and R. L. Shepard

Read by Mr. Woodmansee

The following outline and notes as given on the plating of die castings are based on our experience in handling 30,000 to 50,000 pieces per day during the past two years. Actual figures of the past six months show that our rejects run less than .5%, which is quite satisfactory from a production standpoint. Yet we are constantly experimenting to improve details of our practice, and do not yet feel that

we have reached a point where we can outline a practice as standardized.

Success in the plating room starts with the raw materials used in the manufacture of the alloy, is very much affected by melting room and die-casting practice, absolutely dependent on the finishing operation, and determined finally by the procedure and skill of the plater. So much can be said on the effect of the aloy, casting and finishing, that detailed discussion on these phases is reserved for a future paper on "The Manufacture of Die Castings for Plating." The scope of the present paper is therefore confined to the actual plating.

Castings received from the polishing room with adhering buffing compound must be soaked or scrubbed in gasoline or a mixture of equal parts gasoline and carbon tetra chloride. It is much better practice, however, to insist that they shall be left clean from the wheel, in which case the gasoline cleaning can be eliminated. We are at present using successively two hot electric cleaners. The first is a caustic cleaner strong in soap which does the heavy cleaning; the second is a weak alkaline cleaner for removing the film of soap left from the first cleaner.

Caustic Soda	2	oz. per gal.
Tri Sodium Phosphate....	2	" " "
Soda Ash	1	" " "
Whale Bil Soap	1½	" " "

In use the caustic soda is converted to soda ash and the soda is precipitated as scum. To strengthen this solution, therefore, it is only necessary to add caustic soda at the rate of two pounds per 100 gallons every few days, and about two pounds of soap about once a week.

The second cleaner has the following composition:

Tri Sodium Phosphate	2	oz. per gal.
Soda Ash	1	" " "

In use it becomes contaminated with soap which may cause peeled plate. At the first sign of trouble due to this cause it should be thrown out and a new solution made up.

In addition to the cleaners, we use a muriatic dip (⅛ pint per gallon) and a cyanide dip (2 oz. per gallon).

The plating tank is 30 inches wide, 24 inches deep and

10 feet long, with agitated cathode rods with a 6-inch stroke, moving ten to twenty times per minute.

The solution need not be of any particular formula. The factors governing its composition are the nickel content of 2.10 oz. per gallon, conductivity of 15 amperes per square foot of cathode at 3 volts, and acidity of 5.7 to 5.8 by the Bureau of Standard's drop ratio method. The following solution answers to above requirements, and has given very satisfactory service:

Double Nickel Salt	10	oz. per gal.
Single Nickel Salt	3	" " "
Epsom Salt	3	" " "
Common Salt	4	" " "
Sodium Citrate	½	" " "
Total Solids	20½	" " "
Baume at 70° F.	11.8°	

Another solution which is equal or better in every respect, and in addition is much simpler to control from the laboratory, or by the plater, is made up as follows:

Single Salt	10	oz. per gal.
Sal Ammoniac	2	" " "
Baume at 70° F.....	7.0	

It is particularly recommended that the solution be analyzed at regular intervals of one to two weeks, to determine its exact composition. Varying conditions of concentration by evaporation, and dilution by dips and fillings up the tank may so affect the composition as to make it quite uncertain. On the other hand a periodical analysis and adjustment of the composition to the proper formula will forestall many troubles which otherwise may be misinterpreted.

It is even more important to control the acidity exactly by routine tests. tI is our practice to test all solutions daily, late in the afternoon, and make proper additions after the tanks are shut down. If a solution is too alkaline, one pint of hydrofloric acid is added; if too acid, one pint by routine tests. It is our practice to test all solutions of ammonia is added. The proper range is pH=5.7 to 5.8. Above ths the plate will tend to be duller, the solution muddy, the anodes passive and the plate pitted. Below this

point the plate will tend to be brittle and peel, the cathode efficiency low, and the plate streaked and pitted.

Proper racking and wiring of the work is important. If wired the pieces should be ½ inch to 1 inch apart, so as not to shade. If racked they should be arranged similarly to avoid overlapping, and also to avoid high points, which take a strong direct current. All contacts must be tight to avoid streaking.

In carrying on regular production the work should be handled by a crew of two, three, or four men, one of whom is an experienced operator who directs the others and regulates the current. The current required will be from 2¼ to 3½ volts, which will be determined by experience for different classes of work. The time required will be 10 to 20 minutes, similarly determined.

During the course of production it frequently happens that castings fall from the racks to the bottom of the tank. The tanks should be carefully fished every night to remove these castings. However it frequently happens that some castings are not removed, and in the course of several months the solution becomes contaminated with zinc, giving a streaked nickel. If time and solution storage space are available the zinc may be precipitated with sodium bicarbonate, allowed to settle and the clear solution decanted off.

The sequence of operations is as follows:

(1) Soap cleaner, 5 to 10 seconds
(2) Cold water rinse
(3) Alkaline cleaner, 5 seconds
(4) Cold rinse
(5) Muriatic dip
(6) Cold rinse
(7) Cyanide dip
(8) Cold rinse
(9) Nickel plate, 10 to 20 minutes
(10) Cold rinse
(11) Hot rinse

References:

Bureau of Standards Letter Circular No. 82, "Control of Acidity in Nickel Deposition." Blum and Thompson.

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Chem. & Met. Eng., June 22, 1921, "The Use of Fluorides in Solutions for Nickel Deposition." Wm. Blum.

Detroit Branch, Research Committee, Special Report No. 1, "Removal of Zinc From Nickel Solution." R. L. Shepard.

FALL JOINT RESEARCH CONFERENCE

Bureau of Standards—A. E. S. Research Committee,

November 14-15, Washington, D. C.

At this joint conference it is expected that in addition to the Bureau staff and the A. E. S. committee, each branch will send an official representative. Further than this all other members and manufacturers' representatives are urged to attend and will be very welcome.

It is not the primary aim of this meeting to make it the occasion for announcing further results of the bureau's research staff, although its recent work will be reviewed. The principle object is to familiarize the plating profession with its methods and facilities for research procedure in order to stimulate further suggestions as to what other work should be undertaken, and how results already achieved can be made available to the industry in practical form.

The conference will take the form of several meetings, with talks by members of the Bureau's staff, open discussions on various topics, visits to the research laboratories and possibly to other Government departments where plating technique can be demonstrated in practise.

All persons planning on attending the conference should notify the Chairman of the Research Committee or Dr. Blum in order that further notices and information can be sent them direct.

RESEARCH COMMITTEE.
Philip Uhl,
S. E. Heddon,
R. L. Shepard,
138 Yorkshire Road, Detroit, Mich.

BRANCH NEWS

Philadelphia Branch

The regular monthly meeting of the Philadelphia Branch was held on Friday night, September 5, and was well attended, on account of the volume of business on hand the report of the delegates to the convention was laid over to some future meeting.

Four new members were elected to Active membership, and four new applications were read and received ,also one member was reinstated. The committee for the coming Banquet to be held on the Saturday before Thanksgiving, November 22nd, was appointed with Willard M. Scott as chairman.

As promised, our Electro-Chemical instructor was on hand, and started right in to make the members sit up and take notice. He started with the Calibration of the volumetric apparatus, he had them checking up on the discrepencies in reading the meniscus on their flasks and burettes, after which he took up the definition of standard solutions, the general methods of preparation, the general points in procedure and manipulation. The next hour was taken up with the Neutralization Reactions, the Precipitation Reactions, also the Definition of the different Indicators.

All of which was so interesting that the members didn't want to break up and go home, which speaks well for both the Instructor and the members .

Philadelphia Branch has adopted the policy of having an instructor at all its meetings, having realized that the lack of interest and poor attendance in previous years was due to the failure of the Branch, to realize that it must compete with live, active movements of the day, and that the day of dull routine is over.

It must be recognized that 'Man does not live by bread alone," He is a thinking, active animal and must be given opportunity to think and do.

Now Brothers, Philadelphia Branch is giving you all the opportunity to do and accomplish just what a good live active Foreman Plater should do. There is no standing still and remaining satisfied with past achievements. The past is dead, the present lives, and we must live with it or die of atrophy.

Let us therefore keep up the Study and Interest of our craft and be the Foreman Plater, we want others to think we are.

Bridgeport Branch

The Bridgeport Branch held the regular meeting Friday, October 3, with a fair attendance. President William Flaherty presiding. A discussion on the merits of parkerizing took place, most of the members agreeing that on certain classes of work, the finish was satisfactory.

A motion was made and seconded to give a farewell party on October 10, to Fred Griffith, who is going to leave for Canada in a few weeks, where he has accepted a position.

Toronto Branch

After one months' freedom from A. E. S. duties we met again on Monday evening, September 22nd.

A discussion over instructionship of Technical School class resulted in a vote of members present signifying their desire to have Mr. J. A. Magill instruct the class again this year. Mr. Magill expressed his willingness if he can give his attention to new members and allow older members to do experimental work.

Mr. Harry Gresswell presented a very interesting and instructive paper on "Making Teaspoons" and illustrated the subject by a complete display of specimens showing operations from blanking to final finishes.

A discussion on "Brighteners" brought out following opinions . For nickel, cadmium sulphate or cadmium stick, boric acid. For copper—(cyanide), Hypo or sugar of lead. For brass—arsenic. For acid zinc—tin chloride. No set rules can be given owing to varied conditions and requirements.

Question Box—What is the meaning of the term 'reducing agent' as applied to an addition to a plating solution?

Answer—A substance which effects the separation of a metal from other substances with which it is combined, or causes a metal to disintegrate, especially to deprive wholly or partially of oxygen; to combine with or subject to the action of hydrogen.

Question—Would it be practical to reclaim by electrolysis, the copper from sheathed wire elements? If so, what solution is advised?

Answer—Yes, use an ordinary acid copper sulphate solution and protect the cathodes from the action of the freed particals of manganese oxide.

Question—What solvent is used to dissolve arsenic for use in brass solution?

Answer—Caustic soda or liquid ammonia. One member stated he received two years dues value at this meeting. Well it was a good one, and we intend to have all future meetings equally as interesting.

Boston Branch

Boston Branch met Friday the 3rd, at the American House with President White in the chair.

After going through the regular order of business a committee was appointed to arrange with the Franklyn Institute of Boston one or two evenings a week for a class of the members to take up chemistry, which every member would like to see go through. Mr. Nihan and Mr. Lee will take up the matter with the Franklyn Institute and report back to this branch at the next meeting which if arrangements are made, will meet again on the 24th of this month. After a short discussion the meeting adjourned at 10:15 P. M.

New York Branch

New York Branch of the A. E. S. held its September meetings at the Broadway Central Hotel, New York City, New York. President Fischer presided. After the regular rountine of business was dispenced with, the following problems were discussed: Best method of silverplating brass reflectors; Best method of striping nickel off brass without attacking seriously the brass surface. The best method for silvering brass reflectors decided upon is as follows: Highly polish brass reflectors, clean bright nickel plate, rinse, then bright silverplate, the two bright solutions will eliminate the silver coloring. The following striping formulas were recommended to give smooth results. No. 1. Sulphuric acid, 10 gallon, nitrate of potassum 3 lbs. No. 2, Sulphuric acid, 9½ parts, nitric acid, ½ part. No. 3 Sulphuric acid, 35° B. Lead Anodes, 6 volts reverse current. No. 4 Munatic acid straight or dilute 6 to 10 volts, reverse current, anodes copper lead or carbon.

Detroit Branch

Detroit Branch A. E. S. held its regular monthly meeting, Friday, October 3rd, with the largest attendance at a regular meeting, in the history of the branch.

Such shining lights as Dr. William Blum, deposition research head of the Bureau of Standards, Washington, D. C.; Dr. Hiram D. Mathers of Indiana University; a Chemical Engineer from Reo Motor Car Co., whose name the writer was unable to learn, were present and took active part in the general discussion that ensued after rendition of two papers, one, collaborated by Mr. J. H. Flanagan and George Kutzen, Ford Motor experts in electro deposition, and another by Charles H. Cunningham, plating Supt. of Kelsey Wheel Co., one of the most expert men in zinc electro deposition in U. S. today, and who needs no introduction to any A. E. S. member. The papers were too long for reproduction in branch society notes, but will no doubt be published in Review, in near future, as they contain much of value in this line.

Among the facts brought out in the general discussion following the papers, and including everything from cleaning methods to anodes and anodic conditions, was the statement by Mr. Phillips, General Motors Plating Expert, and graduate of one of the Eastern Universities, that a small amount of aluminum, say 2 oz. to 100 lb crucible of zinc, makes an anode of much finer molecular structure, better errosive qualities, and can be easily bent, and that pure rolled zinc anodes are better than cast, while the virtues of mercury as an addition to both solution and anodes, as well as suggestion from Dr. Mathers, regarding the dipping of anodes in mercury, previous to immersion in electrolyte, were discussed pro and con.

The meeting, which broke up at a late hour and was entirely devoted to the subjects afore mentioned, (the regular business being suspended), was the best ever attended, by the former secretary, who reported it in absence of R. L. Shepard, (who arrived late, having just returned from a vacation), and enlightened him as to how little he really knew about electro deposition of metals, after meeting was adjourned.

Cleveland Branch

The Cleveland Branch met at the Hotel Winton, October 4, 1924, for their regular October business meeting. Although the attendance was small we had a very nice meeting. Mr. Philip Seubert was elected to membership . A committee was appointed to investigate the sustaining membership and report by letter to Chairman H. H. Williams of the St. Louis Branch. The Cleveland Branch is trying to increase their membership and it is the hope of the officers that each member will bring in at least one new member.

Grand Rapids Branch

Grand Rapids Branch met October 8, at the Vocational High school. We had a fairly good attendance. At our next meeting we will discuss "Sustaining Membership". We spent a very interesting evening discussing the benefits of using instruments to register the amount of deposit. Some were for and some of the boy's did not see any use of the instrument.

Hartford-Connecticut Valley Branch

Hartford-Conn. Valley Branch held a regular meeting on September 22nd, with President Elwin in the chair, and ten members present.

There was one application for membership. Mr. Bagshaw tendered his resignation as secretary-treasurer, as he found himself unable to give the necessary time to the work. His successor will be selected at the next meeting.

Plans for the coming winter were discussed and it was suggested that several outside speakers be secured to make the meetings more interesting.

Chicago Branch

Regular monthly meeting Chicago Branch A. E. S., held October 11, 1924 at the Atlantic Hotel, 316 So. Clark St.

Meeting called to order with President F. J. Hanlon presiding, and all officers present.

There was a very good attendance, and many questions in the box.

The research committee had selected Aluminum for the Eve. This proved very interesting.

Mr. O. E. Servis, Chairman of Research Committee, had plated samples of aluminum, done through different dips and also read some very interesting literature on same. Mr. Servis was given a standing vote of thanks for his efforts.

Mr. H. A. Gilbertson had some samples of Duralumin forgings and spinnings which also were very interesting, but owing to the late hour will be taken up at the next meeting.

The Research Committee has decided to have a special subject for discussion at each meeting. The subject for our next meeting will be "Duralumin and Bright Dips."

Waterbury Branch

Waterbury Branch had a well attended meeting Friday evening. October 10th. The affair was one of considerable interest, and was attended by a number of visitors from other branches. The use and abuse of lacquers and thinness, was one of the subjects thoroughly discussed. Many cases of ill appearing work, for which the blame was laid on the lacquer, and which upon investigation was found to be due to the wrapping paper and boxes in which it was packed, were commented upon. A number of tests for determining whether the articles were well covered with lacquer, whether cotton or gum, were also commented upon. The lacquer fraternity was represented by Messers: Oberender, Troxler and Began. Their presence and remarks were greatly appreciated by the local members. Mr. Oberender gave some sidelights on the recent Milwaukee convention; not forgetting to tell how "his" western team, beat that of the east, and closed by giving some advance information on how "his" eastern team was going to trim the boys from the west, when they meet in Montreal next summer. John is hoping to put on weight for that all important occasion.

ELECTED TO MEMBERSHIP

Bridgeport Branch

William Ehrencrona .....Box 100, Route 49, Bridgeport, Conn.
Arthur Mace Tyler .....33 Church Lane, Bridgeport, Conn.
John W. Lamorder .....1006 Howard Ave., Bridgeport, Conn.

Cleveland Branch

Phillip Seubert .....4405 Irene Ave., Cleveland, Ohio

Chicago Branch

Cleveland F. Nixon .....c|o Western Clock Co., Lasalle, Ill.
John Grockaski .....4909 Wellington Ave., Chicago, Ill.
F. J. Hodapp .....1112 2nd Ave., Rock Island, Ill.

Philadelphia Branch

Ray H. Bauer .....5414 Woodland Ave., Philadelphia, Pa.
Horace C. Maul .....425 McCash St., Hanover, Pa.
John Mahaffy .....1743 Tilgham St., Philadelphia, Pa.

APPLICATIONS FOR MEMBERSHIP

Grand Rapids Branch

W. J. Chambers .....522 Vmatilla St., S. E., Grand Rapids, Mich.

SUSPENDED

Indianapolis Branch

F. E. Thompson .....1315½ Wisconsin St., Racine, Wis.

Cleveland Branch

Charles J. Garrick .....2036 W. 26th St., Cleveland
Clyde A. Braden .....1272 Beach Ave., Lakewood, O.
Jas. Purcell .....3405 West 62nd St., Cleveland, O.

BOSTON

Regular meetings are held first Friday of each month, at 8 p. m., at the American House, Boston. Secretary, A. W. Garrett, 89 Alexander St., Dorchester, Mass.

BRIDGEPORT

Meets first and third Friday of each month at 62 Cannon St., Room 17, Bridgeport, Conn. Secretary R. J. O'Connor, 1128 Noble Ave., Bridgeport, Conn.

CHICAGO

Meets second Saturday of each month, at 8 p. m., Atlantic Hotel, 316 S. Clark St. Secretary, Robt. Meyers. 1116 Lill Ave., Chicago, Ill.

CINCINNATI

Meets every Thursday, 7:30 p. m., at Vocational Training School, Spring and Liberty St. Secretary, W. J. Husing, 729 McMakin Ave., Cincinnati, Ohio.

CLEVELAND

Meets first Saturday of each month at Hotel Winton. Secretary, H. S. Kneeland, 3924 Clybourne Ave., Cleveland, Ohio.

HARTFORD-CONN. VALLEY

Meets on the fourth Monday of each month at 747 Main St., Hartford, Conn. Secretary, Jas. A. Bagshaw, 39 Grand St., New Britain, Conn.

DAYTON

Meets first Saturday of each month at the Y. M. C. A., Dayton, Ohio. Secretary, Albert Bates, Box 54, Vandalia, Ohio.

DETROIT

Meets first Friday of each month at 478 Alexandrine West. Secretary, R. L. Shepard, 1388 Yorkshire Road, Fox Creek Sta., Detroit, Mich.

GRAND RAPIDS

Meets on the second Wednesday of each month at the Vocational High School, 129 Bostwick Ave., N. E. Secretary, John Raven, 1139 Emerald Ave., Grand Rapids, Mich.

INDIANAPOLIS

Meets the second Saturday of each month at Hotel Denison. Secretary, Louis Mertz, 1725 Union St., Indianapolis, Ind.

MILWAUKEE

Meets second and fourth Thursdays of each month at Lipps Hall, 321 3d St. Secretary, R. Steuernagel, 1508 Concordia Ave., Milwaukee, Wis.

MONTREAL

Meets every Friday at 84 Craig St. West. Secretary, John H. Feelay, 411 Aylmer St., Quebec, Canada.

NEWARK

Meets first and third Fridays of each month at No. 17 Central Ave., Newark, N. J. at 8 p. m. Secretary, John Hiem, 25 Chestnut St., Newark, N. J.

NEW YORK

Meets second and fourth Fridays of each month at the Broadway Central Hotel Parlors, New York City. Secretary, John E. Sterling, 468 Grand Ave., Long Island City, N. Y.

PHILADELPHIA

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Sts. Secretary, P. Uhl, 2432 North 29th St., Philadelphia, Pa.

PITTSBURGH

Meets first Saturday of each month at 8 p. m., at United States Bureau of Mines Bldg., Forbes St. Secretary, S. E. Hedden, 227 Fifth St., Aspinwall, Pa.

PROVIDENCE-ATTLEBORO

Meets first and third Thursday of each month at 184 Washington St., Room 308, Providence, R. I. Secretary, Robert Crook, 185 County St., Attleboro, Mass.

READING

Meets on the second Tuesday of each month. Secretary, William M. Fisher, 654 Gordon St., Reading Pa.

ROCHESTER

Meets every second and fourth Saturday of each month at the Powers Hotel. C. A. Reama, Secretary, 512 Lyell Ave., Rochester, N. Y.

ST. LOUIS

Meets first Tuesday of each month at Barr Branch Library, corner Jefferson and Lafayette Sts. Secretary, H. H. Williams, 4156 Botanical Ave., St. Louis, Mo.

TOLEDA

Meets first Thursday of each month at Toledo University Science Building, Electro-Platers' Room, corner Cherry and Page Sts. Secretary, W. W. Weiker, 411 3d St., Toledo, Ohio.

TORONTO

Meets fourth Monday of each month at Canadian Foresters' Hall, 22 College St., Room No. 2. Walter L. Barrows, 628 Dover Court Road, Toronto, Ontario, Canada.

WATERBURY

Meets every second and fourth Friday of each month. Secretary, Wm. F. Guilford, 230 Cooks St., Waterbury, Conn.